



CAE (Computer Aided Engineering) LINUX 2017

An Open Source Powered Linux Operating System (OS) for Maths, Science and Engineering (Electrical, Electronics, Mechanical, Civil, Aerospace, Mathematics, Physics, Chemistry and more)

No.	Open Source Software	Software Description	Software Link
1	Scilab	Scilab is free and open source software for numerical computation providing a powerful computing environment for engineering and scientific applications.	http://www.scilab.org
2	Octave	GNU Octave is a high-level language, primarily intended for numerical computations. It provides a convenient command line interface for solving linear and nonlinear problems numerically, and for performing other numerical experiments using a language that is mostly compatible with Matlab. It may also be used as a batch-oriented language.	https://www.gnu.org/software/octave/
3	QtOctave	QtOctave is a front-end for Octave. Octave is a high-level language for numerical computations, like Matlab.	https://www.openhub.net/p/qt octave
4	NS-2	ns-2 is a discrete event simulator targeted at networking research. Ns provides substantial support for simulation of TCP, routing, and multicast protocols over wired and wireless (local and satellite) networks.	http://www.isi.edu/nsnam/ns/
5	NS-3	ns-3 is a discrete-event network simulator for Internet systems, targeted primarily for research and educational use	https://www.nsnam.org/
6	GNS3	GNS3 - A graphical network simulator to design and configure virtual networks	https://www.gns3.com/
7	Weka 3	Weka is a collection of machine learning algorithms for data	http://www.cs.waikato.ac.nz/ml/weka/

		mining tasks. The algorithms can either be applied directly to a dataset or called from your own Java code. Weka contains tools for data pre-processing, classification, regression, clustering, association rules, and visualization. It is also well-suited for developing new machine learning schemes.	
8	Wireshark	Wireshark is a network packet analyzer. A network packet analyzer will try to capture network packets and tries to display that packet data as detailed as possible.	https://www.wireshark.org/
9	FreeMAT	FreeMat is a free environment for rapid engineering and scientific prototyping and data processing	http://freemat.sourceforge.net/
10	Maxima	Maxima is a system for the manipulation of symbolic and numerical expressions, including differentiation, integration, Taylor series, Laplace transforms, ordinary differential equations, systems of linear equations, polynomials, sets, lists, vectors, matrices and tensors. Maxima yields high precision numerical results by using exact fractions, arbitrary-precision integers and variable-precision floating-point numbers. Maxima can plot functions and data in two and three dimensions.	http://maxima.sourceforge.net/
11	WxMaxima	wxMaxima is a document based interface for the computer algebra system Maxima. wxMaxima provides menus and dialogs for many common maxima commands, autocompletion, inline plots and simple animations. wxMaxima is distributed under the GPL license.	http://andrejv.github.io/wxmaxima/
12	SageMath	SageMath is a free open-source mathematics software system licensed under the GPL. It builds on top of many existing open-source packages: NumPy, SciPy, matplotlib, Sympy, Maxima, GAP, FLINT, R and many more. Access their combined power through a common, Python-based language or directly via interfaces or wrappers.	http://www.sagemath.org/
13	GeoGebra	The Graphing Calculator for Functions, Geometry, Algebra, Calculus, Statistics and 3D Math! Dynamic mathematics for learning and teaching	https://www.geogebra.org/

14	YACAS	Yet Another Computer Algebra System. Yacas is an easy to use, general purpose Computer Algebra System, a program for symbolic manipulation of mathematical expressions. It uses its own programming language designed for symbolic as well as arbitrary-precision numerical computations. The system has a library of scripts that implement many of the symbolic algebra operations; new algorithms can be easily added to the library.	http://www.yacas.org/
15	PSPP	GNU PSPP is a program for statistical analysis of sampled data. It is a free as in freedom replacement for the proprietary program SPSS, and appears very similar to it with a few exceptions.	https://www.gnu.org/software/pspp/
16	R	R is a free software environment for statistical computing and graphics. It compiles and runs on a wide variety of UNIX platforms, Windows and MacOS.	https://www.r-project.org/
17	R-Studio	People all over the world are turning to R, an open source statistical language, to make sense of data.	https://www.rstudio.com/
18	RKward	RKward is an easy to use and easily extensible IDE/GUI for R . It aims to combine the power of the R-language with the ease of use of commercial statistics tools.	https://rkward.kde.org/
19	KNIME	KNIME is an open source data analytics, reporting and integration platform. KNIME integrates various components for machine learning and data mining through its modular data pipelining concept. A graphical user interface allows assembly of nodes for data preprocessing (ETL: Extraction, Transformation, Loading), for modeling and data analysis and visualization.	https://www.knime.org/
20	Python	Python is a widely used high-level programming language for general-purpose programming	https://www.python.org/
21	MatPlotLib	Matplotlib is a Python 2D plotting library which produces publication quality figures in a variety of hardcopy formats and interactive environments across platforms. Matplotlib can be used in Python scripts, the Python and IPython shell, the jupyter notebook, web application servers, and four graphical user interface toolkits.	https://matplotlib.org/

22	GNUPlot	GNUPlot is a portable command-line driven graphing utility for Linux, OS/2, MS Windows, OSX, VMS, and many other platforms. It was originally created to allow scientists and students to visualize mathematical functions and data interactively, but has grown to support many non-interactive uses such as web scripting. It is also used as a plotting engine by third-party applications like Octave. Gnuplot supports many different types of 2D and 3D plots	http://www.gnuplot.info/
23	Dia Diagram Editor	Dia Diagram Editor is free Open Source drawing software for Windows, Mac OS X and Linux. Dia supports more than 30 different diagram types like flowcharts, network diagrams, database models. More than a thousand readymade objects help to draw professional diagrams. Dia can read and write a number of different raster and vector image formats. Software developers and database specialists can use Dia as a CASE tool to generate code skeletons from their drawings. Dia can be scripted and extended using Python.	http://dia-installer.de/
24	Gromacs	A molecular dynamics package primarily designed for biomolecular systems such as proteins and lipids.	http://www.gromacs.org/
25	Qalculate	Qalculate - Qalculate! is a multi-purpose desktop calculator for GNU/Linux. Features include customizable functions, units, arbitrary precision, plotting, and a user-friendly interface	https://qalculate.github.io/
26	MayaVi Data Visualizer	MayaVi - 3D Scientific Data Visualization and Plotting	http://code.enthought.com/projects/mayavi/
27	NumPy	NumPy is the fundamental package for scientific computing with Python. It contains among other things: <ul style="list-style-type: none"> • a powerful N-dimensional array object • sophisticated (broadcasting) functions • tools for integrating C/C++ and Fortran code • useful linear algebra, Fourier transform, and random number capabilities <p>Besides its obvious scientific uses, NumPy can also be used as an efficient multi-dimensional container of generic data. Arbitrary data-types can be defined. This allows NumPy to seamlessly and</p>	http://www.numpy.org/

		speedily integrate with a wide variety of databases.	
28	SciPy	SciPy (pronounced “Sigh Pie”) is a Python-based ecosystem of open-source software for mathematics, science and engineering.	https://www.scipy.org/
29	SimPy	SimPy is a process-based discrete-event simulation framework based on standard Python.	http://simpy.readthedocs.io/en/latest/
30	gEDA	The gEDA project has produced and continues working on a full GPL'd suite and toolkit of Electronic Design Automation tools. These tools are used for electrical circuit design, schematic capture, simulation, prototyping, and production. Currently, the gEDA project offers a mature suite of free software applications for electronics design, including schematic capture, attribute management, bill of materials (BOM) generation, netlisting into over 20 netlist formats, analog and digital simulation, and printed circuit board (PCB) layout.	http://www.geda-project.org/
31	Gerbv	A Free / Open Source Gerber Viewer	http://gerbv.geda-project.org/
32	Gedasymbols	This website is a repository for symbols, footprints and documentation that are useful to anyone using the GPL schematic creation program gschem or the GPL pcb layout program PCB. The mission of gedasymbols.org is to increase the usage of the gEDA suite of tools by distributing symbols and footprints for these programs, as well as other third-party additions and tools.	http://www.gedasymbols.org/
33	GTKWave	GTKWave is a fully featured GTK+ based wave viewer for Unix, Win32, and Mac OSX which reads LXT, LXT2, VZT, FST, and GHW files as well as standard Verilog VCD/EVCD files and allows their viewing.	http://gtkwave.sourceforge.net/
34	NgSpice	Ngspice is a mixed-level/mixed-signal circuit simulator. Its code is based on three open source software packages: Spice3f5, Cider1b1 and Xspice. It is the open source successor of these venerable packages.	http://ngspice.sourceforge.net/

35	TCLSpice	TclSpice is an improved version of Berkeley Spice designed to be used with the Tcl/Tk scripting language. The project is open-source (BSD license) and based upon the NG-Spice source code base with many improvements	http://tclspice.sourceforge.net/
36	EasySpice	EasySpice is a simple to use spice frontend. It uses gschem for schematic entry and ngspice as circuit simulator.	http://easy-spice.sourceforge.net/
37	LTspice (Freeware)	LTspice IV is a freeware switching regulator app filed under educational software and made available by Linear Technology for Windows.	http://ltspice-iv.en.lo4d.com/
38	XCircuit	XCircuit is a UNIX/X11 program for drawing publishable-quality electrical circuit schematic diagrams and related figures, and produce circuit netlists through schematic capture. XCircuit regards circuits as inherently hierarchical, and writes both hierarchical PostScript output and hierarchical SPICE netlists. Circuit components are saved in and retrieved from libraries which are fully editable. XCircuit does not separate artistic expression from circuit drawing; it maintains flexibility in style without compromising the power of schematic capture.	http://opencircuitdesign.com/xcircuit/
39	Eagle PCB Design	Eagle - Tailored to meet the needs of professional engineers, makers and students!	https://circuits.io/eagle/
40	Oregano	Oregano is an application for schematic capture and simulation of electronic circuits. The actual simulation is performed by Berkeley Spice, GNUcap or the new generation ngspice.	https://github.com/drahnr/oregano
41	Magic VLSI Layout Tool	Magic is a venerable VLSI layout tool, written in the 1980's at Berkeley by John Ousterhout, now famous primarily for writing the scripting interpreter language Tcl. Due largely in part to its liberal Berkeley open-source license, magic has remained popular with universities and small companies. The open-source license has allowed VLSI engineers with a bent toward programming to implement clever ideas and help magic stay abreast of fabrication technology. However, it is the well thought-out core algorithms which lend to magic the greatest part of its popularity. Magic is widely cited as being the easiest tool to use	http://opencircuitdesign.com/magic/index.html

		for circuit layout, even for people who ultimately rely on commercial tools for their product design flow.	
42	Alliance VLSI CAD	Alliance is a complete set of free cad tools and portable libraries for vlsi design. It includes a vhdl compiler and simulator, logic synthesis tools, and automatic place and route tools. A complete set of portable cmos libraries is provided.	https://soc-extras.lip6.fr/en/alliance-abstract-en/
43	GNUCap	Gnucap is the GNU Circuit Analysis Package. Gnucap is a modern post-spice circuit simulator with several advantages over Spice derivatives.	http://gnucap.org/dokuwiki/doku.php?id=gnucap:start
44	GSpaceUI	gSpiceUI is a very handy and useful tool for running circuit simulations. Provides a GUI for two freely available electronic circuit simulation engines: NG-Spice and GNU-Cap.	https://sourceforge.net/projects/gspiceui/
45	SimulAVR	The SimulAVR program is a simulator for the Atmel AVR family of microcontrollers. (ATtiny and ATmega) SimulAVR can be used either standalone or as a remote target for avr-gdb. There is a python- and TCL interface. When used in gdbserver mode, the simulator is used as a back-end so that avr-gdb can be used as a source level debugger for AVR programs.	http://www.nongnu.org/simulavr/
46	ChemTool	Chemtool is a small program for drawing chemical structures on Linux and Unix systems using the GTK toolkit under X11	http://ruby.chemie.uni-freiburg.de/~martin/chemtool/
47	QEMU	QEMU is a generic and open source machine emulator and virtualizer. Run operating systems for any machine, on any supported architecture	http://www.qemu.org/
48	SkyEye	SkyEye is a very fast full system simulator which takes llvm as IR of dynmic compiled framework.. It can simulate series ARM, Coldfire,Mips, Powerpc, Sparc, x86, TI DSP and Blackfin DSP Processor. Also can simulate multicore system by the multicore of host.	https://sourceforge.net/projects/skyeye/
49	IRSIM	IRSIM is a tool for simulating digital circuits. It is a "switch-level" simulator; that is, it treats transistors as ideal switches. Extracted capacitance and lumped resistance values are used to make the switch a little bit more realistic than the ideal, using the <i>RC</i> time	http://opencircuitdesign.com/irsim/index.html

		constants to predict the relative timing of events.	
50	GPSim	gpsim is a full-featured software simulator for Microchip PIC microcontrollers	http://gpsim.sourceforge.net/
51	Qflow	Qflow An Open-Source Digital Synthesis Flow. A digital synthesis flow is a set of tools and methods used to turn a circuit design written in a high-level behavioral language like verilog or VHDL into a physical circuit, which can either be configuration code for an FPGA target like a Xilinx or Altera chip, or a layout in a specific fabrication process technology, that would become part of a fabricated circuit chip. Several digital synthesis flows targeting FPGAs are available, usually from the FPGA manufacturers, and while they are typically not open source, they are generally distributed for free (presumably on the sensible assumption that more people will be buying more FPGA hardware).	http://opencircuitdesign.com/qflow/index.html
52	Qrouter	Qrouter is a tool to generate metal layers and vias to physically connect together a netlist in a VLSI fabrication technology. It is a maze router, otherwise known as an "over-the-cell" router or "sea-of-gates" router. That is, unlike a channel router, it begins with a description of placed standard cells, usually packed together at minimum spacing, and places metal routes over the standard cells.	http://opencircuitdesign.com/qrouter/index.html
53	NetGen	Netgen is a tool for comparing netlists, a process known as LVS , which stands for "Layout vs. Schematic". This is an important step in the integrated circuit design flow, ensuring that the geometry that has been laid out matches the expected circuit. Very small circuits can bypass this step by confirming circuit operation through extraction and simulation. Very large digital circuits are usually generated by tools from high-level descriptions, using compilers that ensure the correct layout geometry. The greatest need for LVS is in large analog or mixed-signal circuits that cannot be simulated in reasonable time. Even for small circuits, LVS can be done much faster than simulation, and provides feedback that makes it easier to find an error than does a simulation.	http://opencircuitdesign.com/netgen/index.html

54	KTechLab	KTechlab is an IDE for microcontrollers and electronics.	https://github.com/ktechlab/ktechlab/wiki
55	TkGate	TkGate is a event driven digital circuit simulator with a tcl/tk-based graphical editor. TkGate supports a wide range of primitive circuit elements as well as user-defined modules for hierarchical design.	https://sourceforge.net/projects/tkgate/
56	XOScope	xoscope is a digital oscilloscope for Linux!	http://xoscope.sourceforge.net/
57	RFDump	RFDump is a tool to detect RFID tags and show their meta information: Tag ID, tag type, manufacturer etc. The user data of a tag can be displayed and modified using either a Hex or an ASCII editor. In addition, the integrated cookie feature demonstrates how easy it is for a company to abuse RFID technology to spy on their customers. RFDump works with the ACG Multi-Tag Reader or similar card reader hardware.	http://www.rfdump.org/
58	Logisim	Logisim is an educational tool for designing and simulating digital logic circuits. With its simple toolbar interface and simulation of circuits as you build them, it is simple enough to facilitate learning the most basic concepts related to logic circuits. With the capacity to build larger circuits from smaller subcircuits, and to draw bundles of wires with a single mouse drag, Logisim can be used (and is used) to design and simulate entire CPUs for educational purposes.	http://www.cburch.com/logisim/
59	FFTW	FFTW is a C subroutine library for computing the discrete Fourier transform (DFT) in one or more dimensions, of arbitrary input size, and of both real and complex data (as well as of even/odd data, i.e. the discrete cosine/sine transforms or DCT/DST)	http://www.fftw.org/
60	MAFFT	MAFFT is a multiple sequence alignment program for unix-like operating systems. It offers a range of multiple alignment methods, L-INS-i (accurate; for alignment of <~200 sequences), FFT-NS-2 (fast; for alignment of <~30,000 sequences), <i>etc.</i>	http://mafft.cbrc.jp/alignment/software/
61	MGL Tools	MGLTools is a software developed at the Molecular Graphics Laboratory (MGL) of The Scripps Research Institute for	http://mgltools.scripps.edu/

		visualization and analysis of molecular structures.	
62	Gatesim (Windows)	Logic Gate Simulator is an open-source tool for experimenting with and learning about logic gates.	https://www.kolls.net/gatesim/
63	Cedar Logic Simulator	CEDAR LS is an interactive digital logic simulator to be used for teaching of logic design or testing simple digital designs. It features both low-level logic gates as well as highlevel components, including registers and a Z80 microprocessor emulator	https://sourceforge.net/projects/cedarlogic/
64	QUCS	QUCS is an integrated circuit simulator which means you are able to setup a circuit with a graphical user interface (GUI) and simulate the large-signal, small-signal and noise behaviour of the circuit. After that simulation has finished you can view the simulation results on a presentation page or window.	http://qucs.sourceforge.net/
65	FritZing	Fritzing is an open-source hardware initiative that makes electronics accessible as a creative material for anyone	http://fritzing.org/home/
66	TinyCAD (Windows only)	TinyCAD is a good, free software for drawing professional-looking circuit diagrams	https://tinycad.en.softonic.com/
67	PCB (opencircuitdesign)	PCB is free software for designing printed circuit board layouts. It has many features and is capable of professional-quality output. It is available for UN*X operating systems, e.g., GNU/Linux, Mac OS-X, or Cygwin under Windows.	http://opencircuitdesign.com/pcb/index.html
68	PCB (gEDA-Project)	PCB is an interactive printed circuit board editor for Unix, Linux, Windows, and Mac systems. PCB includes a rats nest feature and schematic/netlist import, design rule checking, and can provide industry standard RS-274X (Gerber), NC drill, and centroid data (X-Y data) output for use in the board fabrication and assembly process, as well as photorealistic and design review images. PCB offers high end features such as an autorouter and trace optimizer which can tremendously reduce layout time. For custom requirements, PCB offers a plug-in API for inserting new functionality and using that functionality from within the GUI as well as in scripts.	http://pcb.geda-project.org/
69	FreePCB (Windows only)	FreePCB is a free, open-source PCB editor for MS Windows	http://www.freepcb.com/

70	Visolate	Visolate is an application for calculating machining toolpaths (G-code) for manufacturing printed circuit boards (PCBs) by isolation milling. As an outstanding feature, this calculation is done on the computer's screen, using the features of 3D graphics drivers.	https://github.com/Traumflug/Visolate
71	KiCAD	KiCad is an open source software suite for Electronic Design Automation (EDA). The programs handle Schematic Capture, and PCB Layout with Gerber output.	http://kicad-pcb.org/
72	Electric	The Electric VLSI Design System is an open-source Electronic Design Automation (EDA) system that can handle many forms of circuit design, including: <ul style="list-style-type: none"> • Custom IC layout • Schematic Capture (digital and analog) • Textual Languages (such as VHDL and Verilog) • ...and much more. 	http://www.staticfreesoft.com/
73	gDSPsim	GNU Digital Signal Processor Simulator	http://gdpsim.sourceforge.net/
74	gResistor	This is a program which models common, commercial resistors to calculate resistivity of a resistor.	https://sourceforge.net/projects/gresistor/
75	TMS320C[34]x DSP GNU	GNU compiler tools to support the TMS320C3x and TMS320C4x digital signal processor chips from Texas Instruments	http://www.elec.canterbury.ac.nz/c4x/
76	NASM	An 80x86 assembler designed for portability and modularity	http://www.nasm.us/
77	FASM	FASM (<i>flat assembler</i>) is an assembler for x86 processors. It supports Intel-style assembly language on the IA-32 and x86-64 computer architectures. It claims high speed, size optimizations, operating system (OS) portability, and macro abilities. It is a low-level assembler and intentionally uses very few command-line options. It is free and open-source software.	http://flatassembler.net/
78	RTAI	RealTime Application Interface for Linux - which lets you write applications with strict timing constraints for your favourite operating system	https://www.rtai.org/
79	Minicom	Using Minicom the serial terminal emulator	https://alioth.debian.org/projects/minicom

80	GNU Cross Compiler for Embedded Development	The GNU Embedded Toolchain for ARM is a ready-to-use, open source suite of tools for C, C++ and Assembly programming targeting ARM Cortex-M and Cortex-R family of processors. It includes the GNU Compiler (GCC) and is available free of charge directly from ARM for embedded software development on Windows®, Linux and Mac OS® X operating systems.	https://developer.arm.com/open-source/gnu-toolchain/gnu-rm/downloads
81	SDCC - Small Device C Compiler	SDCC is a <i>retargettable, optimizing Standard C (ANSI C89, ISO C99, ISO C11) compiler suite</i> that targets the <i>Intel MCS51</i> based microprocessors (<i>8031, 8032, 8051, 8052, etc.</i>), <i>Maxim</i> (formerly <i>Dallas</i>) <i>DS80C390</i> variants, <i>Freescale</i> (formerly <i>Motorola</i>) <i>HC08</i> based (<i>hc08, s08</i>), <i>Zilog Z80</i> based MCUs (<i>z80, z180, gbz80, Rabbit 2000/3000, Rabbit 3000A, TLCS-90</i>) and <i>STMicroelectronics STM8</i> . Work is in progress on supporting the <i>Microchip PIC16</i> and <i>PIC18</i> targets. It can be retargeted for other microprocessors.	http://sdcc.sourceforge.net/
82	Z88DK	z88dk is a z80 C cross compiler supplied with an assembler / linker and a set of libraries implementing the C standard library for a number of different z80 based machines.	https://www.z88dk.org/
83	AS31 Assembler	AS31 and SDCC For Linux Based Systems	https://www.pjrc.com/tech/8051/tools/linux_compile.html
84	MCU8051IDE	Integrated Development Environment for some microcontrollers based on 8051(e.g. AT89S8253). Supported languages are Assembly and C. It has its own simulator, assembler, editor and many other tools.	https://sourceforge.net/projects/mcu8051ide
85	EMU8051	8051/8052 emulator with curses-based UI	https://github.com/jarikomppa/emu8051
86	GNUSim8085	A graphical simulator, assembler and debugger for the Intel 8085 microprocessor	https://gnusim8085.github.io/
87	DIS51 / D52	D52 8051/8052 Disassembler	http://www.bipom.com/dis51.php
88	Gwave	Gwave - a waveform viewer	http://gwave.sourceforge.net/
89	Arduino	Arduino is an open-source prototyping platform based on easy-to-use hardware and software. Learn how to write code and upload it to your board in minutes.	http://www.arduino.org/

90	Icarus Verilog	Icarus Verilog is a Verilog simulation and synthesis tool. It operates as a compiler, compiling source code written in Verilog (IEEE-1364) into some target format. For batch simulation, the compiler can generate an intermediate form called <i>vvp assembly</i> .	http://iverilog.icarus.com/
91	Veriwell	VeriWell is a full Verilog simulator. It supports nearly all of the IEEE1364-1995 standard, as well as PLI 1.0.	https://sourceforge.net/projects/veriwell/
92	GHDL	GHDL is an open-source simulator for the VHDL language. GHDL allows you to compile and execute your VHDL code directly in your PC. GHDL fully supports the 1987, 1993, 2002 versions of the IEEE 1076 VHDL standard, and partially the latest 2008 revision	http://ghdl.free.fr/
93	FreeHDL	A project to develop a free, open source, GPL'ed VHDL simulator for Linux!	http://www.freehdl.seul.org/
94	Verilator	Verilator is the fastest free Verilog HDL simulator, and beats most commercial simulators. It compiles synthesizable Verilog (not test-bench code!), plus some PSL, SystemVerilog and Synthesis assertions into C++ or SystemC code. It is designed for large projects where fast simulation performance is of primary concern, and is especially well suited to generate executable models of CPUs for embedded software design teams.	https://www.veripool.org/wiki/verilator
95	vIDE	vIDE (which stands for Verilog IDE) is a fully featured, cross-platform, integrated environment for designing, testing and debugging Verilog applications. It aims to full OVI compliance.	http://vlogide.sourceforge.net/index.html
96	BRL-CAD	BRL-CAD is a powerful open source cross-platform solid modeling system that includes interactive geometry editing, high-performance ray-tracing for rendering and geometric analysis, a system performance analysis benchmark suite, geometry libraries for application developers, and more than 30 years of active development.	https://brlcad.org/
97	SAGCAD	SagCAD is a CAD/CAM of 2D. Designed for the X Window System, it uses the GTK+ 1.2 libraries.	http://sagcad.osdn.jp/en/
98	FreeCAD	FreeCAD is a parametric 3D modeler made primarily to design	https://www.freecadweb.org/

		real-life objects of any size. Parametric modeling allows you to easily modify your design by going back into your model history and changing its parameters. FreeCAD is open-source and highly customizable, scriptable and extensible.	
99	rattleCAD	rattleCAD is free and a openSource software project. rattleCAD supports bespoke bicycle frame builders with a fully parametric bicycle model inside. rattleCAD guides you through the design process by configure the base geometry before refining the bicycle frame itself. Based on this refinement rattleCAD creates workshop drawings including the main miters of round tubes and settings for different frame jigs. rattleCAD also provides a set of components to build a bicycle mockup and supports different export formats to print and reuse all drawings generated inside rattleCAD.	http://rattlecad.sourceforge.net/
100	LibreCAD	LibreCAD is a free Open Source CAD application for Windows, Apple and Linux.	http://librecad.org/cms/home.html
101	QCAD	QCAD is a free, open source application for computer aided drafting (CAD) in two dimensions (2D). With QCAD you can create technical drawings such as plans for buildings, interiors, mechanical parts or schematics and diagrams. QCAD works on Windows, macOS and Linux.	https://qcad.org/en/
102	gCAD3D	GCAD3D - 3D CAD / CAM Software for Linux und MS-Windows	http://www.gcad3d.org/
103	PyCAM	PyCAM is a toolpath generator for 3-axis CNC machining. It loads 3D models in STL format or 2D contour models from DXF or SVG files. The resulting G-Code can be used with LinuxCNC or any other machine controller.	http://pycam.sourceforge.net/
104	SweetHome3D	Sweet Home 3D is a free interior design application that helps you draw the plan of your house, arrange furniture on it and visit the results in 3D.	http://www.sweethome3d.com/
105	Blender	Blender is the free and open source 3D creation suite. It supports the entirety of the 3D pipeline—modeling, rigging, animation, simulation, rendering, compositing and motion	https://www.blender.org/

		tracking, even video editing and game creation.	
106	OpenCascade	A 3D modeling kernel that consists of reusable C++ object libraries that are available as Open Source.	https://www.opencascade.com/
107	OpenFOAM	OpenFOAM is the free, open source CFD software released and developed primarily by OpenCFD Ltd since 2004. It has a large user base across most areas of engineering and science, from both commercial and academic organisations. OpenFOAM has an extensive range of features to solve anything from complex fluid flows involving chemical reactions, turbulence and heat transfer, to acoustics, solid mechanics and electromagnetics.	http://www.openfoam.com/
108	Salome Platform	SALOME is an open-source software that provides a generic platform for Pre- and Post-Processing for numerical simulation. It is based on an open and flexible architecture made of reusable components.	http://www.salome-platform.org/
109	Impact FEM	Impact is an explicit Finite Element Program Suite which simulates dynamic impact events. It has a range of elements, contact handling and different material laws. Models can be created, solved and analyzed with the included pre- and postprocessor.	http://www.impact-fem.org/
110	Calculix	Calculix is a Free Software Three-Dimensional Structural Finite Element Program	http://www.calculix.de/
111	Paraview	ParaView is an open-source, multi-platform data analysis and visualization application. ParaView users can quickly build visualizations to analyze their data using qualitative and quantitative techniques. The data exploration can be done interactively in 3D or programmatically using ParaView's batch processing capabilities.	http://www.paraview.org/
112	Palabos	Palabos is an open-source CFD solver based on the lattice Boltzmann method.	http://www.palabos.org/
113	Agros2D	Agros2D is a multiplatform application for the solution of physical problems based on the Hermes library, developed by the group at the University of West Bohemia in Pilsen.	http://www.agros2d.org/

114	Code Saturne	Code Saturne solves the Navier-Stokes equations for 2D, 2D-axisymmetric and 3D flows, steady or unsteady, laminar or turbulent, incompressible or weakly dilatable, isothermal or not, with scalars transport if required.	http://code-saturne.org/cms/
115	Elmer	Elmer is an open source multiphysical simulation software. Elmer includes physical models of fluid dynamics, structural mechanics, electromagnetics, heat transfer and acoustics, for example. These are described by partial differential equations which Elmer solves by the Finite Element Method (FEM).	https://www.csc.fi/web/elmer
116	OOFEM	OOFEM is an open source multi-physics finite element code with object oriented architecture. The aim of this project is to provide efficient and robust tool for FEM computations as well as to offer highly modular and extensible environment for development.	http://www.oofem.org
117	FEATFLOW	FeatFlow is a free and open source high performance computational fluid dynamics CFD code solving the incompressible Navier-Stokes equations in two and three dimensions. Unique for CFD codes, FeatFlow employs a finite element discretization with Rannacher-Turek rotated non-conforming basis functions, which coupled with a geometric multigrid approach which enables very high performance.	http://www.featflow.de/en/index.html
118	Hermes2D	Hermes2D (<i>Higher-order modular finite element system</i>) is a C++/Python library of algorithms for rapid development of adaptive hp-FEM solvers. hp-FEM is a modern version of the finite element method (FEM) that is capable of extremely fast, exponential convergence.	http://www.hpfem.org/hermes/
119	GetFem++	GetFEM++ is an open source library based on collaborative development. It aims to offer a framework for solving potentially coupled systems of linear and nonlinear partial differential equations with the finite element method. GetFEM++ is interfaced with some script languages (Python, Scilab and Matlab) so that almost all of the functionalities can be used just writing scripts. It works in arbitrary dimension and allow to couple 1D, 2D and 3D problems.	http://getfem.org/

120	FreeFem++	FreeFem++ is a partial differential equation solver. It has its own language. freefem scripts can solve multiphysics non linear systems in 2D and 3D.	http://www.freefem.org/
121	Fenics Project	FEniCS is a popular computing platform for partial differential equations (PDE). FEniCS enables users to quickly translate scientific models into efficient finite element code. With the high-level Python and C++ interfaces to FEniCS, it is easy to get started, but FEniCS offers also powerful capabilities for more experienced programmers. FEniCS runs on a multitude of platforms ranging from laptops to high-performance clusters.	https://fenicsproject.org/
122	Ascend	ASCEND is a free open-source software program for solving small to very large mathematical models. ASCEND can solve systems of non-linear equations, linear and nonlinear optimisation problems, and dynamic systems expressed in the form of differential/algebraic equations.	http://ascend4.org/Main_Page
123	OpenModelica	OPENMODELICA is an open-source Modelica-based modeling and simulation environment intended for industrial and academic usage. Its long-term development is supported by a non-profit organization – the Open Source Modelica Consortium (OSMC).	https://www.openmodelica.org/
124	STEP	Step is an open source two-dimensional physics simulation engine.	https://edu.kde.org/step/
125	DWSIM	DWSIM is a CAPE-OPEN compliant chemical process simulator for Windows and Linux, also available for mobile devices running Android or iOS. Built on the top of the Microsoft .NET 4.0 and Mono Platforms and featuring a rich Graphical User Interface (GUI), DWSIM allows chemical engineering students and chemical engineers to better understand the behavior of their chemical systems by using rigorous thermodynamic and unit operations' models with no cost at all.	http://dwsim.inforside.com.br/wiki/index.php?title=Main_Page
126	SU2	The Open Source CFD Code	http://su2.stanford.edu/
127	Project Chrono	An Open Source Multi-physics Simulation Engine	http://projectchrono.org/

128	Celestia	The free space simulation that lets you explore our universe in 3 dimensions. Celestia runs on Windows, Linux, and Mac OS X.	https://celestiaproject.net/
129	Advanced Simulation Library	Advanced Simulation Library (ASL) is a free and open source hardware accelerated multiphysics simulation platform (and an extensible general purpose tool for solving Partial Differential Equations). Its computational engine is written in OpenCL and utilizes matrix-free solution techniques which enable extraordinarily high performance, memory efficiency and deployability on a variety of massively parallel architectures, ranging from inexpensive FPGAs, DSPs and GPUs up to heterogeneous clusters and supercomputers.	http://asl.org.il/
130	Code Aster	Multiphysics Finite Element Analysis. Structures and Thermomechanics Analysis for Studies and Research	http://www.code-aster.org/
131	GMSH	Gmsh is a free 3D finite element grid generator with a build-in CAD engine and post-processor. Its design goal is to provide a fast, light and user-friendly meshing tool with parametric input and advanced visualization capabilities. Gmsh is built around four modules: geometry, mesh, solver and post-processing. The specification of any input to these modules is done either interactively using the graphical user interface or in ASCII text files using Gmsh's own scripting language.	http://gmsh.info/
132	Engrid	ENGRID is a mesh generation software with CFD applications in mind. It supports automatic prismatic boundary layer grids for Navier-Stokes simulations and has a Qt based GUI.	https://github.com/enGits/engrid
133	Gerris Flow Solver	Gerris is a Free Software program for the solution of the partial differential equations describing fluid flow. The source code is available free of charge under the Free Software GPL license.	http://gfs.sourceforge.net/wiki/index.php/Main_Page
134	MBDyn	Free Multibody Dynamics Simulation. MBDyn is the first and possibly the only <i>free*</i> general purpose <u>Multibody Dynamics</u> analysis software. MBDyn features the integrated multidisciplinary simulation of multibody, multiphysics systems, including nonlinear mechanics of rigid and flexible bodies (geometrically exact & composite-ready beam and shell finite elements, component mode synthesis elements, lumped	https://www.mbdyn.org/

		elements) subjected to kinematic constraints, along with smart materials, electric networks, active control, hydraulic networks, and essential fixed-wing and rotorcraft aerodynamics.	
135	CAMotics	CAMotics is an Open-Source software which simulates 3-axis CNC milling or engraving. It is a fast, flexible and user friendly simulation software for the DIY and Open-Source community. CAMotics works on Linux, OS-X and Windows.	http://camotics.org/
136	GcodeTools	CAM extension for Inkscape to export paths to Gcode	https://github.com/cnc-club/gcodetools
137	GCAM	GCAM - GNU Computer Aided Manufacturing	https://github.com/bubbapizza/GCAM
138	G-Simple	G-Simple is a simple CAM for 3 Axis Machining Centers.	http://www.gsimple.eu/index.html
139	CAD.Py	Converts an image to Gcode for pen plotting, laser cutting or milling.	https://sourceforge.net/projects/cadpy/
140	Discretizer	Discretizer will create geometry and meshes for three dimensional flow simulations (CFD). A interactive mesh creation tool.	http://www.discretizer.org/
141	Cura 3D Printing	Cura prepares your model for 3D printing. For novices, it makes it easy to get great results. For experts, there are over 200 settings to adjust to your needs. As it's open source, our community helps enrich it even more.	https://ultimaker.com/en/products/cura-software
142	ImageJ	ImageJ - An open platform for scientific image analysis	https://imagej.net/Welcome
143	Qblade (Wind Turbine Design and Simulation)	QBlade is an open source wind turbine calculation software, distributed under the GPL. The software is especially adequate for teaching, as it provides a 'hands on' design and simulation capabilities for HAWT and VAWT rotor design and shows all the fundamental relationships of design concepts and turbine performance in an easy and intuitive way.	http://www.q-blade.org
144	Acousto	Acoustic Simulation Tool. AcouSTO can solve problems governed by Laplace, Poisson and Helmholtz Equations.	http://acousto.sourceforge.net/
145	OpenPhase	OpenPhase is the open source software project targeted at the phase field simulations of complex scientific problems involving microstructure formation in systems undergoing first order phase transformation. The core of the library is based on the multiphase	http://www.openphase.de/

		field model ¹ . The project has the form of a library and is written in object oriented C++. It has a modular structure which allows easy extensions of the library and simplifies the development of user programs.	
146	OpenLB	OpenLB - Open Source Lattice Boltzmann Code	http://optilb.org/openlb/
147	LAMMPS	LAMMPS is a classical molecular dynamics code, and an acronym for Large-scale Atomic/Molecular Massively Parallel Simulator. LAMMPS has potentials for solid-state materials (metals, semiconductors) and soft matter (biomolecules, polymers) and coarse-grained or mesoscopic systems. It can be used to model atoms or, more generically, as a parallel particle simulator at the atomic, meso, or continuum scale.	http://lammps.sandia.gov/
148	XFLR5	XFLR5 is an analysis tool for airfoils, wings and planes operating at low Reynolds Numbers.	http://www.xflr5.com/xflr5.htm
149	Globus ToolKit	The Globus Toolkit is a collection of grid middleware that allows users to run jobs, transfer files, track file replicas, publish information about a grid, and more.	http://toolkit.globus.org/toolkit/
150	OpenNebula	OpenNebula is a turnkey enterprise-ready solution that includes all the features needed to provide an on-premises (private) cloud offering, and to offer public cloud services.	https://opennebula.org/
151	OpenStack	OpenStack is a cloud operating system that controls large pools of compute, storage, and networking resources throughout a datacenter, all managed through a dashboard that gives administrators control while empowering their users to provision resources through a web interface.	https://www.openstack.org/
152	Eucalyptus	Eucalyptus is paid and open-source computer software for building Amazon Web Services (AWS)-compatible private and hybrid cloud computing environments marketed by the company Eucalyptus Systems. Eucalyptus is the acronym for Elastic Utility Computing Architecture for Linking Your Programs To Useful Systems.	http://www.eucalyptus.com/

153	Handbrake	HandBrake is a tool for converting video from nearly any format to a selection of modern, widely supported codecs.	https://handbrake.fr/
154	Kazam Screencaster	Kazam is a simple screen recording program that will capture the content of your screen and record a video file that can be played by any video player that supports VP8/WebM video format.	https://launchpad.net/kazam
155	KDENLive	Kdenlive has seen an increasing momentum to developing its full potential in being a stable and reliable video editing tool which the FLOSS community can use to create content and democratize communication.	https://kdenlive.org/
156	Cinelerra	Cinelerra is a video editing and compositing software package. It is designed for the Linux operating system. It is produced by Heroine Virtual, and is free software distributed under the GNU General Public License. Cinelerra also includes a video compositing engine, allowing the user to perform advanced compositing operations such as keying and mattes.	http://heroinewarrior.com/cinelerra.php
157	MakeHuman	Open source tool for making 3D characters	http://www.makehuman.org/
158	FFMpeg	FFmpeg is a free software project that produces libraries and programs for handling multimedia data. FFmpeg includes libavcodec , an audio/video codec library used by several other projects, libavformat (Lavf), an audio/video container mux and demux library, and the ffmpeg command line program for transcoding multimedia files.	https://ffmpeg.org/

Open Source Software List compiled by Mr. S. Baskar (baskar@linuxpert.in)

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